

### **REMARKS**

In the Office Action, the Examiner rejected claims 1-3, 6, 7, 12 and 36, and withdrew claims 4, 5, 8-11, 13-26, and 37-40 from consideration. By this paper, the Applicants amended claims 1, 20-23, and 36-40 to correct minor formatting errors. These amendments do not add any new matter. Further, Applicants added new claims 41-43, all of which read on the elected species.

Upon entry of these amendments, claims 1-3, 6, 7, 12 and 36 remain pending in the present application and are believed to be in condition for allowance. In view of the foregoing amendments and the following remarks, the Applicants respectfully request reconsideration and allowance of all pending claims.

#### **Claim 38 was improperly withdrawn from consideration**

Applicants respectfully assert that claim 38, withdrawn by the Examiner, reads on the elected species. The elected species were: X is  $\text{NR}_4$ , Y is  $\text{NHR}_5$ ,  $\text{R}_2$  is  $(\text{CH}_2)_n\text{COOR}_6$ ,  $\text{R}_4$  is H, and  $\text{R}_5$  and  $\text{R}_6$  are alkyl. All of these chosen species are recited in claim 38. Therefore, Applicants assert that this claim was improperly withdrawn from consideration and respectfully request that the Examiner consider claim 38 along with the other claims reciting the elected species.

#### **Claim Rejections under 35 U.S.C. § 102**

In the Office Action, the Examiner rejected claims 1-3, 6, 7, 12 and 36 under 35 U.S.C. § 102(b) as anticipated by Merkle, et al., U.S. Patent No. 5,569,769 (hereinafter "Merkle"). Specifically, the Examiner stated, *inter alia*, that  $\text{R}^4$  is a  $\text{C}_1\text{-C}_6$  alkyl interrupted by heteroatoms such as nitrogen.  $\text{R}^1$  and  $\text{R}^3$  may include hydrogen, alkyl, phenyl, etc. (citing column 3, lines 30 - 60). Office Action, page 3. Applicants respectfully traverse this rejection.

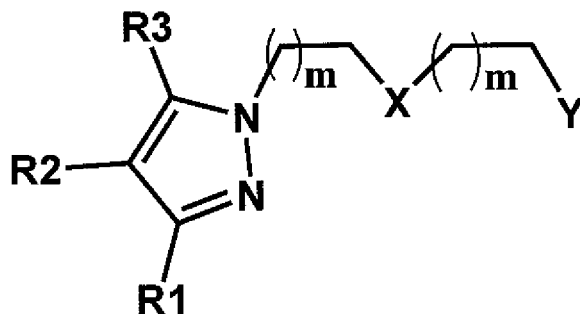
***Legal Precedent and Guidelines***

Anticipation under Section 102 can be found only if a single reference shows exactly what is claimed. *See Titanium Metals Corp. v. Banner*, 227 U.S.P.Q. 773 (Fed. Cir. 1985). For a prior art reference to anticipate under Section 102, every element of the claimed invention must be identically shown in a single reference. *See In re Bond*, 15 U.S.P.Q.2d 1566 (Fed. Cir. 1990). That is, the prior art reference must show the *identical invention* “*in as complete detail as contained in the ... claim*” to support a *prima facie* case of anticipation. *Richardson v. Suzuki Motor Co.*, 9 U.S.P.Q. 2d 1913, 1920 (Fed. Cir. 1989) (emphasis added). Accordingly, the Applicants need only point to a single element or claimed relationship not found in the cited reference to demonstrate that the cited reference fails to anticipate the claimed subject matter. A *strict correspondence* between the claimed language and the cited reference must be established for a valid anticipation rejection.

Moreover, as discussed in the M.P.E.P., unless a species is specifically disclosed in a reference, a genus supports a *prima facie* case for anticipation of the species only if the species can “at once be envisaged” from the genus. *See* M.P.E.P. § 2131.02. Specifically, the genus must be sufficiently limited in scope that one of ordinary skill in the art could draw the structural formula or write the names of all compounds in the genus, including the allegedly anticipated species. *See id.* If a potential structure encompasses a vast number of compounds, it cannot anticipate a specific structure without a more specific description of preferred choices. *See In re Petering*, 301 F.2d 676, 133 USPQ 275 (CCPA 1962), emphasis added. For example, the CCPA held that a reference which disclosed “alkali chlorine or bromine solutions” did not anticipate claims to an “alkali metal hypochlorite.” *See In re Meyer*, 599 F. 2d 1026, 202 USPQ 175 (CCPA 1979). In order for a prior art reference to disclose a species within a large genus of compounds, the reference must provide adequate direction or “blazemarks” to guide one skilled in the art to a species; “[i]n absence of such blazemarks, simply describing a large genus of compounds is not sufficient...”). *Fujikawa v. Wattanasin*, 39 U.S.P.Q.2d 1895, 1905 (Fed. Cir. 1996); *In re Ruschig*, 379 F.2d 990, 994-995, 154 USPQ 118, 122 (CCPA 1967).

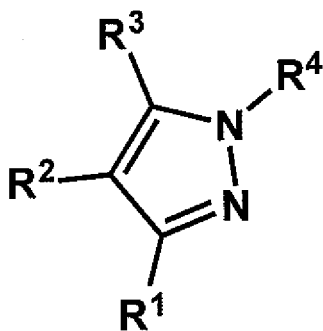
***Merkle Does Not Disclose the Species Recited in the Claims of the Present Application.***

Claims 1 and 36 (and claim 38), as amended, recite a chemical compound having a general structure of



wherein X may be  $\text{NR}_4$  or S; Y may be  $\text{SR}_5$ ,  $\text{NHR}_5$  or  $\text{P}(\text{R}_5)_2$ ;  $\text{R}_2$  may be  $\text{COOH}$ ,  $\text{NHR}_6$  or  $(\text{CH}_2)_n\text{COOR}_6$ ;  $\text{R}_4$  may be H, alkyl, aryl,  $(\text{CH}_2)_n\text{COOR}_6$  or  $(\text{CH}_2)_n\text{OR}_6$ ;  $\text{R}_5$  may be H, alkyl, aryl,  $(\text{CH}_2)_n\text{COOR}_6$  or  $(\text{CH}_2)_n\text{OR}_6$ ; and  $\text{R}_6$  may be H, a biomolecule, alkyl or aryl. Applicants respectfully submit that Merkle does not disclose these compounds, and, thus, as discussed below, Merkle does not anticipate these claims.

In contrast to the structure above, Merkle discloses the more general structure:



in which the substituents  $\text{R}^1$  through  $\text{R}^4$  “are each, independently of one another, hydrogen, halogen, nitro, carboxyl, sulfonyl or C-organic radical.” Merkle, column 3, lines 30-40. With respect to the C-organic radical, Merkle states:

Suitable C-organic radicals are:

alkyl groups which can be straight-chain or branched, for example C<sub>1</sub>-C<sub>10</sub>-alkyl, preferably C<sub>1</sub>-C<sub>8</sub>-alkyl, especially C<sub>1</sub>-C<sub>6</sub>-alkyl, it being possible for these radicals in turn to be interrupted by hetero atoms such as nitrogen, oxygen and sulfur and to carry substituents from the following group: nitro, carboxyl, sulfonyl, halogen, cycloalkyl, bicycloalkyl, aryl and hetaryl;

cycloalkyl groups or bicycloalkyl groups, for example C<sub>3</sub>-C<sub>8</sub>-cycloalkyl or C<sub>6</sub>-C<sub>10</sub>-bicycloalkyl, it being possible for these radicals in turn to be interrupted by hetero atoms such as nitrogen, oxygen and sulfur and to carry substituents from the following group: nitro, carboxyl, sulfonyl, halogen, alkyl, cycloalkyl, bicycloalkyl, aryl and hetaryl;

aryl groups or hetaryl groups such as phenyl, naphthyl and pyridyl, it being possible for these radicals in turn to carry substituents from the following group: nitro, carboxyl, sulfonyl, halogen, alkyl, cycloalkyl, bicycloalkyl, aryl and hetaryl.

*Id.*, column 3, lines 43-61.

For sake of argument, even if the genus recited by Merkle may hypothetically encompass the compounds recited in the current claims, the genus does not anticipate them. As noted in the preceding legal precedent section, unless a genus is so limited in scope that a species may "at once be envisaged" from the genus, it cannot anticipate the species. In this case, there are potentially millions of compounds that may be encompassed by the generic structure described in Merkle. Further, no information is disclosed in Merkle that indicates that the compounds of the instant claims are one of the selections.

In particular, Merkle fails to provide any "blazemarks" to guide one skilled in the art to substitute R<sup>4</sup> with a configuration of a chain comprising 1-2 carbons, followed by NR<sub>4</sub> or S, followed by 1-2 carbons, followed by SR<sub>5</sub>, NR<sub>5</sub>, or PR<sub>5</sub>. This configuration is significant in synthesizing a chelating agent which comprises donor atom sets (*e.g.*, N, S, or P) at specific locations in the chain. These locations are necessary to permit the donor atoms to coordinate with, and thereby stabilize, metal centers. *See* Specification, Fig. 1, Fig.6, and paragraph [0014]. Accordingly, the generic structure listed in Merkle, without

further description, or “blazemarks”, does not support a *prima facie* case for anticipation of the species recited in the present application.

Furthermore, while the structures listed in Merkle are pyrazole derivatives, none of the compounds recited in the current claims are disclosed in Merkle. *See, e.g.*, Merkle, Examples 1-5 (detailing the syntheses of 3-methylpyrazole, 4-methylpyrazole, 3,4-dimethylpyrazole, and 1,5-dimethylpyrazole). As stated in the preceding legal precedent section, for a reference to support a *prima facie* case of anticipation, the reference must show the identical invention “in as complete detail as contained in the claim.”

*Richardson v. Suzuki Motor Co.*, 9 U.S.P.Q. 2d 1913, 1920 (Fed. Cir. 1989). For this reason, none of the species disclosed by Merkle will support a *prima facie* case of anticipation for the species recited in the current claims.

Thus, Merkle does not anticipate independent claims 1 or 36, or claims 2, 3, 6, 7, and 12 depending from claim 1. Accordingly, Applicants respectfully request that the rejection of claims 1-3, 6, 7, 12 and 36 under 35 U.S.C. § 102(b) be withdrawn and the claims allowed. Furthermore, Claim 38, which Applicants respectfully believe has been improperly withdrawn from the present claims, is patentable over Merkle for the same reasons as discussed above with respect to claims 1 and 36.

### **New Claims 41-43**

Applicants added new claims 41-43 to further clarify the scope of the claimed subject matter. Support for new claim 41 may be found in the specification, *e.g.*, at page 1, ll. 4-11, among others. Support for new claim 42 may be found in the specification at numerous places, *e.g.*, page 1, l. 11 and Example 6.1-6.5. Support for new claim 43 may also be found at page 1, ll. 4-11, among others.

### **Conclusion**

The Applicants respectfully submit that all pending claims should be in condition for allowance. However, if the Examiner believes certain amendments are necessary to clarify the present claims or if the Examiner wishes to resolve any other issues by way of

a telephone conference, the Examiner is kindly invited to contact the undersigned attorney at the telephone number indicated below.

***Authorization for Extensions of Time and Payment of Fees***

The Commissioner is hereby authorized to charge \$120.00 to Deposit Account Number 13-1160 for a one-month extension fee and any fee deficiency in connection with this response.

Respectfully submitted,

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